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The information content of stock dividend announcements: Evidence from Sri Lanka

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Abstract

This study examines the market reaction to Sri Lankan stock dividends from 1998 to 2007 using the event analysis methodology. The positive abnormal returns in Sri Lanka (Colombo Stock Exchange) are much higher than any other international findings on the announcement day. Even after controlling the contaminated information, abnormal returns for pure stock dividends are positively significant on the announcement day. Further, announcement day abnormal returns are positively related with the size of the stock dividend announcement. Therefore these findings, based on Colombo Stock Exchange expand the empirical evidence on the signaling hypothesis of stock dividends.

Keywords

Abnormal returns, Colombo Stock Exchange, event analysis methodology, stock dividend announcements.

JEL Classification: G1, G14

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1. Introduction

At present, there is wide agreement among financial researchers that stock dividend announcements (equivalent to bonus issues in Sri Lanka) have positive influence on the movement in equity prices on the date of announcement. The majority of those studies has been carried out on US data or on data from other developed markets (see e.g. for the United States Foster and Vickrey (1978), Grinblatt et al. (1984), McNichols and Dravid (1990), Woolridge (1983) for the US, Ball et al. (1977), Balachandran et al. (2004) for Australia, Masse et al. (1997) for Canada, Anderson et al. (2001) for New Zealand, and Lijleblom (1989) for Sweden. This paper extends the current literature by investigating the impact of Sri Lankan company stock dividend announcements on share prices around announcement dates using daily return data for the period from January 1998 to December 2007.

According to the financial accounting adjustments stock dividends do not affect financial positions, revenue or costs of the company on the date the announcement is made. They just increase the distribution of additional shares, resulting in each shareholder having a greater number of shares in the issuing company. Even though the number of shares outstanding increased, relative claim of each shareholder on the assets of the company remained unchanged. Theoretically, (without any potential information sources about the future cash flow effects) on the date of stock dividend announcement one should expect a value neutral random price change in the market.

However, empirical studies show that statistically significant abnormal returns accompany stock dividends on the announcement date. Researchers have given various interpretations for this announcement date effect. Other than the signaling hypothesis, liquidity hypothesis (Lakonishok and Lev, 1987), tax timing hypothesis (Poterba, 1986), cash substitution hypothesis (Lakonishok and Lev, 1987) and retained earnings hypothesis (Chottiner and Young, 1971), have been tested in different markets.

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However the most popular interpretation of the announcement date effect of stock dividend is the information signaling hypothesis. Accounting adjustment for stock dividend is the transfer of reserves to the permanent equity capital account. Even though this adjustment does not make any sense to the current asset base of the company on the date of the announcement, it gives positive signals that transferred funds are invested in long term assets in the future. Hence it implies that future cash flows of the company may increase due to new investment in fixed assets.

Although announcement day impact of stock dividends has been extensively tested in developed markets, emerging market findings are very few. Therefore the principal motive of the current study is to add new findings to the existing literature by examining the returns impact of stock dividends on the announcement period using Sri Lankan data.

Findings of this study are important due to two reasons. First, Sri Lankan share market (Colombo Stock Exchange, CSE) is one of the fast growing markets in the world. At present most of the world leading share markets are in declining trend or at stagnation. However, annual cumulative returns of All Share Price Index (ASPI) at CSE have recorded a significant increase from –21.82% to 208.40% from December 2000 to August 2009. This increasing trend of ASPI returns is quite significant when compare with the S&P 500, U.S and Nikkei 225, Japan (see figure 4 in the appendix). Second, there is a high level of foreign participation in the share trading at CSE. For an example foreign investors accounted for 54% of the total share purchases for the year 2008 (annual report of SEC 2008).

The principal aim of this paper is to examine the informational content of stock dividend announcements and thereby provide a test of the semi-strong form market efficiency of the Sri Lankan share market. Further the study examines the degree to which announcement is anticipated and the relation between size of the stock dividend and the announcement effect.

The study attempts to answer this empirical question of informational content of stock dividend announcements using standard event analysis methodology.

The structure of the paper is as follows. In the next section, a brief literature review is presented, while in the third section, research design is described and the sample, estimations and abnormal returns generations are defined. The fourth section presents the testable hypotheses and fifth section is for the results of the study. Last, sixth section concludes the findings.

2. Review of Literature

The signaling hypothesis says that an announcement of a stock dividend conveys new information to the market. Foster and Vickrey (1978) examine daily returns around announcement dates. Their primary motive of the paper is to determine whether stock dividend announcements cause investors to change their expectations concerning future firm prospects. They analyze daily market model residuals around announcement day for 82 stock dividend announcements over the period 1972–74. The sample is controlled for news announcements and cash dividend announcements within three days of the declaration date. They hypothesize that the mean of the declaration day residuals would be greater than zero due to information content of stock dividend and their results are inline with the hypothesis.

Woolridge (1983) examines the daily returns around 317 stock dividend announcements controlled for earnings announcements and cash dividend payments. They find that stock dividend announcements are interpreted by investors as positive signals from managers about the future business operations. Further, stock dividend size has a positive impact on announcement day returns and that smaller (less than 3 percent) distributions convey no information to investors. Both expected and unexpected stock dividends generate positive abnormal returns on the announcement date. However abnormal return effect of expected event is higher than the unexpected event.

Anderson et al. (2001), using event analysis methodology, report significant abnormal returns around announcement period. Their sample of non contaminated announcements show significant two day returns. However this is not significantly different when compared with the remaining contaminated announcements.

Grinblatt et al. (1984) examine the announcement period effect of stock dividends and splits of more than 10% at NYSE and AMEX- listed securities between 1967 and 1976. By selecting those firms not declaring any contemporaneous cash dividend during the stock distribution, they find positive returns for firms with either stock dividends or splits. Thereby they conclude that stock dividends and splits convey information about future cash flows even in the absence of cash dividends.

Lijleblom (1989) examines the signaling hypothesis of stock dividend and stock splits for stocks listed on the Stockholm Stock Exchange (SSE). The problem of simultaneous announcements of other information is present in 90% of the cases at (SSE). The contaminating effects of earnings and dividend announcements are controlled by using a control

group of other wise similar stocks but which do not split or distribute a stock dividend. They find significantly high price reactions for the stock dividend/split group than the control group which is interpreted as support for the signaling hypothesis in the presence of contaminating announcements.

McNichols and Dravid (1990) provide further evidence to support the signaling hypothesis. They report positively significant abnormal returns on the day of stock dividend announcement. Further they find that both small stock dividend factor sample (less than 10%) and large stock dividend factor sample show statistically significant abnormal returns on the announcement day. However, small stock dividends have correspondingly small announcement effects and large stock dividends have more pronounced announcement effects than small stock dividends.

Masse et al. (1997) examine the announcement day impact of stock splits, reverse splits and stock dividends of Toronto Stock Exchange from 1975–94. Abnormal returns are derived using the mean adjusted returns model, the market adjusted returns model and the simple ordinary least square market model. For the stock dividends, abnormal returns are positive from day 0 to day 2 and on day 0 and day 1 average abnormal returns are statistically significant at 1% level.

Contrary to others a recent emerging market study by Papaioannou et al. (2000) at Athens Stock Exchange find no significant abnormal returns on and around announcement period. However their research environment is quite different from other markets, stock dividends in Greece are not initiated by firms but they are compulsory requirements imposed upon firms to satisfy legal requirements and any stock dividend announcement should get the prior approval of the share holders along with the terms of the distribution. Therefore stock dividends are fully expected by the share holders in Greece.

More recent study by Balachandarn et al. (2004) find positive and statistically significant abnormal returns for the announcement day to the following day. Further they find that abnormal returns for contaminated events outperform the uncontaminated events on day 0. However difference of abnormal returns is not statistically significant. More analysis finds that initial stock dividend abnormal returns outperform the subsequent on the day 0 but again difference of abnormal returns is not statistically significant.

3. Data and Methodology

Stock dividend announcement information of Sri Lankan listed companies from the period 1998 to 2007 is collected from the CSE data library. Initially 185 stock dividend announcements are considered for the study and the following criterion is used to select the final sample which takes into account the thin trading behavior of stocks at the CSE.

Daily share price data for each company over the period of 220 trading days before to and 20 trading days after the announcement date are used for the study. In order to include a security in the sample it must have at least 120 daily returns (50% of the entire period) in the entire 241 days period.[1]

Finally 100 stock dividend announcements are selected for the study. For the purpose of further analysis of the announcement day impact, the total sample is divided into subsamples based on three criterions as follows.

1) In order to distinguish share return impact on stock dividend from other simultaneous announcements (cash dividend and right issues) the sample is divided into two subsamples as contaminated and uncontaminated events. Being in line with the Anderson et al. (2001) and Balachandran et al. (2004), uncontaminated events of 57 stock dividends are found which have no other information release in the week surrounding the stock dividend announcement.[2]
2) Further sample stratification is done based on initial and subsequent stock dividend announcements. Whereby a subsequent (initial) stock dividend is defined as a case in which the company has (not) announced a stock dividend in the 12-month period immediately prior to the stock dividend announcement – see e.g. Balachandran et al. (2004) or Foster and Vickrey (1978). Out of the total 100 events 78 events are initial stock dividends where as 22 are subsequent stock dividends.
3) Finally the total sample is stratified into two subsamples based on size of the stock dividend announcement. Woolridge (1983) and McNichols and Dravid (1990) report that stock dividend size is positively correlated with the daily returns. Two subsamples are: (1) stock dividend (SD) $\leq$ 25% – 54 events; (2) stock dividend (SD) > 25% – 46 events.

[1] However, Saens and Sandoval (2005) include a security in their sample if it has at least 25% daily returns during the study period.

[2] Foster Vickrey (1978) identifies a contaminated event if cash dividend has occurred with in 3 days prior to or after the announcement date.

Table 1 provides a summary of the total stock dividends which classified under each criterion for each year.

In order to examine the market reaction to the stock dividend announcements, average abnormal returns and cumulative average abnormal returns are computed for selected periods before and after the announcement date. For the purpose of computing abnormal returns, actual returns and expected returns for the selected periods (explain later) have to be computed.

The actual returns of security, i, on a particular day, t, are defined as:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}.$$

Here P_{it} is the closing price of security i on t and P_{it-1} is the closing price of security i on $t-1$.

Actual returns are adjusted for the various benefits received by the investors.[3]

Abnormal Returns (ARs) are computed for a study period of ± 20 trading days around the announcement day (day 0) of the stock dividend in the following three ways.

1) Market deducted returns (MDR):

$$AR_{it} = R_{it} - R_{mt}.$$

2) Returns in excess of the market model (MM):

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}.$$

3) Mean adjusted returns (MAR): $AR_{it} = R_{it} - \overline{R}_i$.

Where R_{it} is the observed return for security i at day t and R_{mt} is the return of the value – weighted return of stock on the market return and $\overline{R}_i$ is the average stock specific return. α_i and β_i as well as $\overline{R}_i$ are estimated on daily data for an estimation period of 200 trading days[4] prior to the window period of 20 trading days prior to the announcement date.

Market deducted returns model and mean adjusted returns model are used to check the problems associated with estimating beta in thin trading market (See e.g. Papaiuannou and Philippatos, 1982).

The daily average abnormal returns (AAR) for all companies are defined as

$$AAR_t = \frac{1}{n}\sum_{i=1}^{n} AR_{it},$$

where t is –20 to +20 and n is 100 stock dividend announcements

The cumulative average abnormal returns (CAARs) are defined as

$$CAAR_t = AAR_t + CAAR_{t-1}$$
$$= \sum_{t=-20}^{20}\left(\frac{1}{n}\sum_{i=1}^{n} AR_{it}\right).$$

Test statistics for any day in the window period analyzes whether or not the portfolio average abnormal return in any day is equal to zero. The study uses the cross-sectional *t* test to analyze the statistical significant of the AARs in the window period. The cross-sectional *t* test is estimated dividing the average event-period abnormal returns (AAR) by its contemporaneous cross-sectional standard deviation (σ_{AAR}).

$$t = \frac{AAR_t}{\sigma_{AAR_t}}.$$

The cross-sectional standard deviation is computed as follows:

$$\sigma_{AAR_t} = \sqrt{\frac{1}{n(n-1)}\sum_{i=1}^{n}\left(AAR_{it} - \overline{AAR_i}\right)^2}.$$

To test whether bonus issue announcement period abnormal returns significantly different between two subsamples, a non-parametric test, analysis of variance technique known as the Mann-Whitney U test is used.

Null Hypothesis is tested by calculating the standardized normal variable with mean μ_U and Standard deviation σ_U.

$$z = \frac{U - \mu_U}{\sigma_U}.$$

Here U is minimum of T_A and T_B, with

$$T_A = n_A n_B + \frac{n_A(n_A+1)}{2} - R_A,$$

[3] Daily security returns are adjusted for various benefits received to the investor on ex-dates using the following formula. (see, Samarakoon, 1997),

$$R_{i,t} = [(1 + RR + BR)\cdot(P_i + D)]/(RR \cdot P_r + P_{i+1}),$$

where, R_t is return for date *t*, *RR* is the rights ratio, *BR* is the bonus ratio, P_t is current day closing price, *D* is dividends per share, P_r is the per share price of rights, and P_{t-1} previous day's closing price.

[4] Kothari (2001) and Kotari and Warner (2005) indicate that length of the estimation period is arbitrary. It has to be long enough to estimate the parameters of the model and short enough to avoid an eventual instability of the parameters. In general the financial literature use a length between 100 (see Masse et.al., 1997) and 250 days (see Balachandran et al., 2004).

$$T_B = n_A n_B + \frac{n_B(n_B+1)}{2} - R_B,$$

n_A and n_B are two sample sizes, R_A and R_B are sum of ranks of the sample A and B.

4. Testable hypotheses

H1. *Companies announce stock dividends will experience positive announcement period abnormal returns.*

Signaling hypothesis suggests that announcement of stock dividends release positive information regarding the company's future prospects. Therefore positive abnormal returns are expected during the period of the bonus issue announcement – see e.g., Anderson et al. (2001), Foster and Vickrey (1978), Grinblatt et al. (1984), McNichols and Dravid (1990), Woolridge (1983).

H2. *Announcement period abnormal returns will be higher for initial stock dividends than the subsequent stock dividends*.

It is argued that initial stock dividends generate more signals than the subsequent stock dividends as the latter is expected by the investors. Balachandran et al. (2004) find high abnormal returns for the initial subsample than that of the subsequent subsample on the announcement date.

H3. *Announcement period abnormal returns will be positively related to the size of the stock dividend (stock dividend ratio/ bonus ratio)*.

It is expected that announcement period abnormal returns are positively correlated with the size of the stock dividend. The rational for this hypothesis is that when the size of the stock dividend ratio increases it generates more positive signals to the investors about the future cash flows of the company – see e.g. Woolridge (1983), McNichols and Dravid (1990), Balachadran et al. (2004).

5. Results

5.1 Total sample results

In this section, the stock price reactions around the announcements of stock dividends are analyzed for all the events.

In Table 2 we report the abnormal returns generated by the market model, market deducted returns model and mean adjusted returns model for announcement day (day 0), 3 days window period prior to announcement day (0) and 3 days after the announcement day. Post and pre event period abnormal returns reveal the leakages and lags in information disclosure.

Average abnormal returns for the total sample of 100 stock dividend announcements are 10.32% using the market model on day 0 which is statistically significant at 1% level and with in the pre event period, day –1 shows average abnormal returns of 1.43 which also statistically significant. Market adjusted returns model and mean adjusted returns model also show statistically significant average abnormal returns of 10.03% and 10.11% respectively on the day 0. Further, market model shows statistically significant average abnormal returns on the day –1. Day 1 average abnormal returns are 0.50%, 1.84% and 1.57% for MM, MDM and MAR models respectively. However, only MDM result is statistically significant at 10% level.

The announcement day returns behavior is much similar to the other international findings. However, stock dividend announcement day price effect in Sri Lanka is much higher than the other international findings which have found abnormal returns ranging 1% Lijleblom (1989) to 3.8 McNichols and Dravid (1990) on the announcement day of stock dividend announcements.

Table 1 Bonus share issue summary 1998–2007

Year	Stock dividend		Contaminated(C) / Uncontaminated(U)		Size of the stock dividend (SD)		Initial (I) / subsequent (S) stock dividends	
	Total	Qualified	C	U	SD ≤ 25%	SD > 25%	I	S
1998	27	11	00	11	06	05	07	04
1999	19	08	00	08	07	01	05	03
2000	15	10	04	06	04	06	09	01
2001	07	05	02	03	04	01	04	01
2002	18	03	02	01	03	00	03	00
2003	14	08	03	05	03	05	06	02
2004	25	14	06	07	11	03	12	02
2005	28	18	09	10	07	11	13	05
2006	20	14	09	05	06	08	12	02
2007	12	09	05	04	03	06	07	02
Total	185	100	40	60	54	46	78	22

On average MM, MDM and MAR models derive the same average abnormal returns. It is evident by student's paired t-test value between MM and MARN average abnormal returns is 0.34 and student's paired t –test value between MM and MAR is 0.72. Therefore it is evident that market model parameters are free from thin trading behavior of stocks at CSE. As market model, market deducted model and mean adjusted returns model generate same results, coming discussions will be restricted only to the market model findings.

5.2 Contaminated and Uncontaminated sample results

In accordance with Anderson et al. (2001) and Balachandran et al. (2004), the total sample is divided into two subsamples as contaminated events and uncontaminated events to determine any significant difference of average abnormal returns between two subsamples. The study finds 60 uncontaminated (40 contaminated) events where no (there are) cash dividend announcemnets or split announcements made within a week surrounding the stock dividend announcements. Table 3 reports that Average abnormal returns are positive and statistically significant for both subsamples on the announcement day.

For the uncontaminated subsample, average abnormal return on day 0 is 7.11%, which is significant at 1% level. At the same time day –1 average abnormal returns (1.12%) are also statistically significant at 5% level. Anderson et al. (2001), Grinblatt et al. (1984) and Foster and Vickrey (1978) also show the positive significant abnormal returns on the announcement day for their uncontaminated samples. However, for Balachandran et al. (2004), uncontaminated group average abnormal returns are not statistically significant on announcement day. Average abnormal returns for contaminated subsample on day 0 are two times higher than (15.14%) uncontaminated group and it is statistically significant at 1% level. Both day –1 and day –2 also report statistically significant average abnormal returns (10% level and 5% level respectively) of 1.89 and 1.46 respectively for contaminated events.

Table 3 provides quite interesting findings when compare average abnormal returns of contaminated groups with the uncontaminated group on the announcement day. Inconsistent with the other international findings (Anderson et al., 2001, and Balachandran, 2004), it finds that average abnormal returns are significantly different with non parametric Mann-Whitney test statistic of 2.33 between the contaminated group and uncontaminated group on the announcement day. The findings of uncontaminated group clearly support the first hypothesis (h1).

Table 2 Average abnormal returns around the announcement day of stock dividends, 1998–2007

Event Day	Market model		Market Deducted Return (MDR) model		Mean Adjusted Returns (MAR) model	
	AAR	t–value	AAR	t–value	AAR	t–value
–3	–0.08	–0.33	–0.15	–0.59	0.07	0.30
–2	0.59	1.81*	0.63	1.92*	0.42	1.20
–1	1.43	2.73***	1.54	2.86***	1.50	2.80***
0	10.32	6.44***	10.03	6.52***	10.11	6.50***
1	0.50	0.63	1.84	1.80*	1.57	1.64*
2	–0.46	–2.25**	–0.37	–1.79*	–0.32	–1.56
3	0.31	1.27	0.43	1.89*	0.40	1.68*

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

Table 3 Average abnormal returns around the announcement day of stock dividends classified under contaminated and uncontaminated events

Event Day	All Events		Contaminated Events(40)		Uncontaminated Events(60)		MW Test
	AAR	t–value	AAR	t–value	AAR	t–value	
–3	–0.08	–0.33	–0.21	–0.47	0.00	0.02	1.34
–2	0.59	1.81*	1.46	2.64***	0.02	0.04	1.97*
–1	1.43	2.73***	1.89	1.69*	1.12	2.46**	0.11
0	10.32	6.44***	15.14	4.57***	7.11	5.13***	2.33**
1	0.50	0.63	1.32	0.81	–0.05	–0.07	1.54
2	–0.46	–2.25**	–0.92	–2.45**	–0.16	–0.69	1.38
3	0.31	1.27	–0.18	–0.59	0.63	1.86*	0.52

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

5.3 Initial and subsequent stock dividends

Table 4 shows the Average abnormal returns around the announcement period for initial (78 events) and subsequent (22 events) stock dividend announcements. As hypothesized, initial stock dividend announcements show higher average abnormal returns of 11.40% at the same time the subsequent stock dividend announcements show average abnormal returns of 6.49% on the announcement day. Both figures are statistically significant at 1% level. The non parametric Mann-Whitney tests show that announcement period abnormal returns are not statistically significantly different between initial stock dividend announcements and subsequent stock dividend announcements. As can be seen in the last column of the table 3, MW test statistics on day 0 for the difference in announcement period price reaction between initial and subsequent stock dividend announcements is 1.26. This is similar to the findings of the Balachandran et al. (2004). However, on day –1 average abnormal returns of initial bonus issues outperform the average abnormal returns of subsequent bonus issues at significant level of 10% (MW is 1.66). Therefore the findings reject the second hypothesis (h2).

5.4 Size of the stock dividend announcements

Interestingly, abnormal returns are seem to vary statistically when the total sample is divided into two subsamples based on the size of the stock dividend announcement. Table 5 shows the average abnormal returns around the event period for the subsamples. According to the table the total sample has been divided into two subsamples; stock dividends less than or equal to 25% (54 events) and stock dividends more than 25% (46 events).

As hypothesized (h3) abnormal returns behavior is positively related with the size of the stock dividend announcement. According to the table 5 average abnormal returns adjusted for market model are 4.41%, and 17.26% for small and large stock dividend announcement subsamples respectively. It means large stock dividend sample outperform the small sample by 7.23% on the announcement day. Further, both figures are statistically significantly different from zero at 1% level. Non-parametric Mann-Whitney test is employed to test the difference between

Table 4 Average abnormal returns around the announcement day of stock dividends classified under initial and subsequent events

Event Day	Initial (78)		Subsequent (22)		MW Test
	AAR	t–value	AAR	t–value	
–3	0.03	0.27	–0.50	2.21**	1.24
–2	0.69	1.69*	0.26	–1.40	0.01
–1	1.74	2.67***	0.33	0.68	1.66*
0	11.40	5.87***	6.49	2.84***	1.26
1	0.03	0.36	1.15	0.63	0.79
2	–0.46	–1.87*	–0.46	–1.43	0.12
3	0.18	0.67	0.736	1.39	1.15

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

Table 5 Average abnormal returns for size sorted subsamples

Event day	SD ≤25% –(54)		SD>25% –(46)		MW Test
	AAR	t–value	AAR	t–value	
–3	0.04	0.13	–0.22	–0.54	0.32
–2	0.09	0.19	1.19	2.47**	1.13
–1	0.99	2.18**	1.95	1.94*	0.26
0	4.41	3.71***	17.26	5.97***	4.89***
1	0.03	0.09	1.04	0.63	0.39
2	–0.34	–1.40	–0.60	–1.76*	0.51
3	0.67	1.98*	–0.12	–0.37	1.78*

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

announcement period price reactions of two size samples. As can be seen in the table, average abnormal returns are statistically different (MW is 4.89) at 1% level between two subsamples on day 0 in the event period. Therefore this positives association between stock dividend size and abnormal return is similar to the other international findings – see e.g. Woolridge (1983) and McNichols and Dravid (1990).

Table 6 further analyzes the relationship between average abnormal returns and stock dividend size documented in the table 5. First, all stock dividends are sorted for uncontaminated and contaminated subsamples and then sorted for two size samples under each subsample. Uncontaminated and contaminated group results are shown by panel A and panel B respectively.

This double sorting will help to identify the relationship between pure (uncontaminated) stock dividends and size of the stock dividend. At the first look all the four double sorted size subsamples show statistically significant average abnormal returns on the announcement day. Under the uncontaminated group average abnormal returns of large stock dividends outperform the small stock dividends by 12.21 on the announcement day with MW test value of 4.39 which is significant at 1% level. At the same time under contaminated group also large stock dividends out perform the small stock dividends by 12.08 on the announcement date with MW test value of 2.26 which is significant at 5% level. These uncontaminated group findings clearly support the third hypothesis (h3), announcement period abnormal returns positively relate to the size of stock dividend.

5.5 Pre and post announcement period results

It is further examined the abnormal price reactions for a wider event window, extending from 20 trading days prior to and 20 trading days subsequent to event date. The purpose of back and forward testing of average abnormal returns is to examine any leakage or lag information effect of bonus issue announcements on share prices. As table 7 and figure 1 show us, cumulative average abnormal returns (CAARs) are positive throughout the pre and post announcement periods. Average abnormal returns of all events are cumulating to around 10.32 over the pre-event period. This is consistent with most of the international findings. However, Balachandran et al. (2004) reports that in the Australian market CAARs come to peak seven days after the announcement date.

As revealed in figure 1 pre-announcement period CAARs are prominent for the subsequent announcements of stock dividends than the initial stock dividends. The opposite pattern is visible in the post announcement period and it is consistent with Australian findings. Further, figure 1 shows that CAARs begin to increase from 10 days before the announcement date but post announcement period CAARs do not show any information leakages. Figure 2 and 3 show CAARs in the pre and post-announcement period for contaminated/ uncontaminated subsamples and stock dividend size based subsamples respectively. Abnormal returns of contaminated events outperform the uncontaminated events and average abnormal returns of large sample outperform the small sample in the post event period. However there are no signs of delayed reactions to stock dividend announcement information. Figure 1, 2 and 3 show us little positive abnormal returns in the pre-event period before the event day and this type of price behavior is similar to the experiences of Australia (Balachandran et al., 2004), U.S (Foster and Vickrey, 1978), Sweden (Lijleblom, 1989, New Zealand (Anderson et al., 2001) but contradictory with the experience of Canada (Masse et al., 1997).

Table 6 Average Abnormal Returns double sorted subsamples

Event Day	Panel A: Uncontaminated group					Panel B: Contaminated group				
	SD ≤ 25% (35)	t-value	SD > 26% (25)	t-value	MW Test	SD ≤ 25% (19)	t-value	SD ≥ 26% (21)	t-value	MW Test
–3	0.11	0.37	–0.14	–0.27	0.35	–0.10	–0.16	–0.32	–0.48	0.23
–2	–0.11	–0.17	0.19	0.49	0.08	0.43	0.81	2.39	2.65**	1.39
–1	0.91	1.81*	1.42	1.67*	0.32	1.12	1.23	2.58	1.30	0.15
0	2.02	2.61***	14.23	5.57***	4.39***	8.80	3.10***	20.87	3.77***	2.26**
1	–0.16	–0.42	0.09	0.05	0.88	0.37	0.49	2.17	0.71	0.04
2	–0.09	–0.31	–0.25	–0.65	0.41	–0.82	–1.77*	–1.02	–1.72*	0.07
3	0.84	1.77*	0.35	0.72	0.97	0.37	0.89	–0.69	–1.60	1.64

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

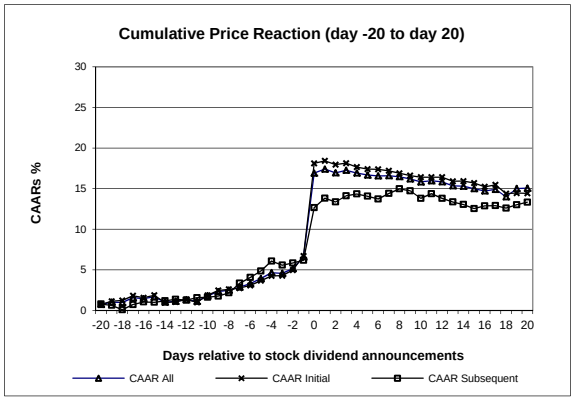

Figure 1 Cumulative price reactions for all, initial and subsequent samples.

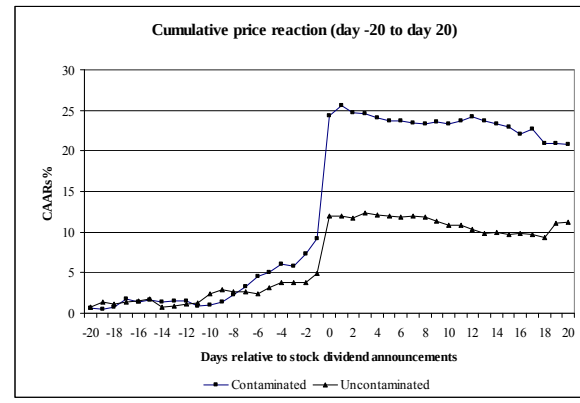

Figure 2 Cumulative price reactions for contaminated and uncontaminated

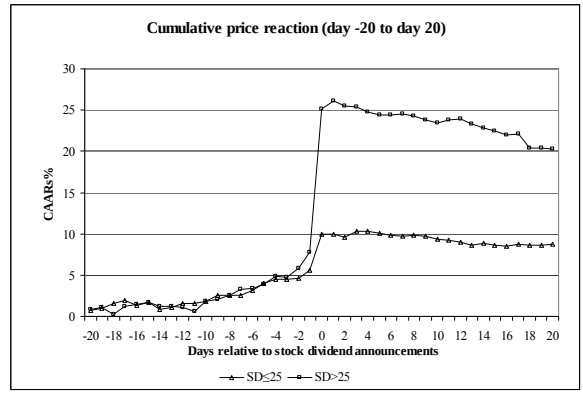

Figure 3 Cumulative price reactions for all, small and large subsamples

6. Conclusion

This paper examines the announcement period piece reactions to stock dividends recorded from 1998 to 2007 in Sri Lanka. The study uses the standard event analysis methodology to examine the price reaction to stock dividend announcements. Abnormal returns are created using market model, market deducted model and mean adjusted returns model. Study extensively tests the information signaling hypothesis of stock dividends in Sri Lanka. Major findings of the study are summarized as follows.

All three models generate statistically significant average abnormal returns of over 10% on the announcement day of the stock dividend. Abnormal returns of contaminated sample significantly outperform that of the uncontaminated (pure stock dividend) sample on the event day. Further, uncontaminated sample abnormal returns are statistically significant and they are much higher than the abnormal returns of uncontaminated stock dividends reported in other international studies. Stock price reaction of initial stock dividends is higher than the price reaction of subsequent stock dividends. However they are not statistically significantly different from each other. As hypothesized there is a clear positive relationship between the size of the stock dividend and abnormal returns on the day of the stock dividend announcement. This relationship prevails as it is even after controlling the total sample for the other contaminated information. Finally, pre and post announcement period cumulative abnormal returns reveal that there is no post announcement period delayed reaction to stock dividend announcements and there are slightly positive cumulative abnormal returns before the announcement day but it is natural in the other international findings.

Overall, it can be concluded that this study strongly support the information signaling hypothesis consistent with the findings in other developed markets. However, price reaction of Sri Lankan companies is much higher than the other countries on the date of the stock dividend announcement. Finally, the study reveals that CSE supports the semi-strong form of efficient market hypothesis.

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Appendix

Table 7 Average abnormal returns and cumulative average abnormal returns in the window period

Event Day	All bonus issues		Initial bonus issues		Subsequent bonus issues	
	AAR	CAAR	AAR	CAAR	AAR	CAAR
–20	0.74**	0.74	0.72**	0.72	0.79	0.79
–19	0.28	1.02	0.41	1.13	–0.16	0.63
–18	–0.04	0.98	0.10	1.23	–0.54	0.09
–17	0.59**	1.57	0.58**	1.81	0.62	0.72
–16	–0.12	1.45	–0.24	1.57	0.33	1.04
–15	0.23	1.68	0.31	1.87	–0.04	1.00
–14	–0.66**	1.03	–0.89**	0.98	0.18	1.18
–13	0.10	1.13	0.08	1.06	0.19	1.37
–12	0.20	1.33	0.29	1.35	–0.11	1.27
–11	–0.21	1.12	–0.35	0.99	0.30	1.57
–10	0.69*	1.81	0.87*	1.86	0.05	1.62
–9	0.50*	2.31	0.60*	2.47	0.14	1.76
–8	0.19	2.50	0.13	2.60	0.40	2.17
–7	0.38	2.88	0.15	2.75	1.18	3.35
–6	0.42	3.30	0.34	3.08	0.71	4.06
–5	0.63	3.93	0.58	3.67	0.79	4.86
–4	0.72**	4.65	0.58**	4.25	1.22**	6.08
–3	–0.08	4.57	0.04	4.29	–0.50	5.58
–2	0.59*	5.17	0.69*	4.97	0.26	5.85
–1	1.43**	6.60	1.74**	6.71	0.33	6.18
0	10.32***	16.91**	11.40***	18.11**	6.49***	12.66**
1	0.50	17.41**	0.31	18.42**	1.15	13.82**
2	–0.46**	16.95**	–0.46**	17.96**	–0.46	13.36**
3	0.31	17.26**	0.18	18.14**	0.76	14.12**
4	–0.33*	16.92**	–0.49*	17.65*	0.23	14.35**
5	–0.25	16.68*	–0.24	17.41*	–0.28	14.06**
6	–0.10	16.57*	–0.04	17.37*	–0.34	13.73**
7	–0.02	16.59*	–0.17	17.20*	0.67	14.40**
8	–0.11	16.48*	–0.31	16.90*	0.58*	14.98**
9	–0.28	16.20*	–0.29	16.61	–0.25	14.73**
10	–0.36*	15.84*	–0.20	16.41	–0.93*	13.80*
11	0.13	15.97*	0.01	16.41	0.57*	14.38*
12	–0.13	15.84*	0.00	16.41	–0.57**	13.80*
13	–0.49**	15.35	–0.50**	15.91	–0.45	13.35*
14	–0.05	15.30	0.02	15.93	–0.31	13.05*
15	0.19	15.00	–0.24	15.69	–0.51	12.54
16	–0.30	14.72	–0.46	15.23	0.34	12.87
17	–0.28	14.91	0.24	15.47	0.03	12.91
18	–0.91	14.00	–1.08	14.39	–0.30	12.60
19	1.02	15.02	0.07	14.45	0.41	17.01**
20	0.04	15.06	–0.03	14.42	0.32	17.33**

* Significantly different from zero at the 10% level; ** significantly different from zero at the 5% level; *** significantly different from zero at the 1% level.

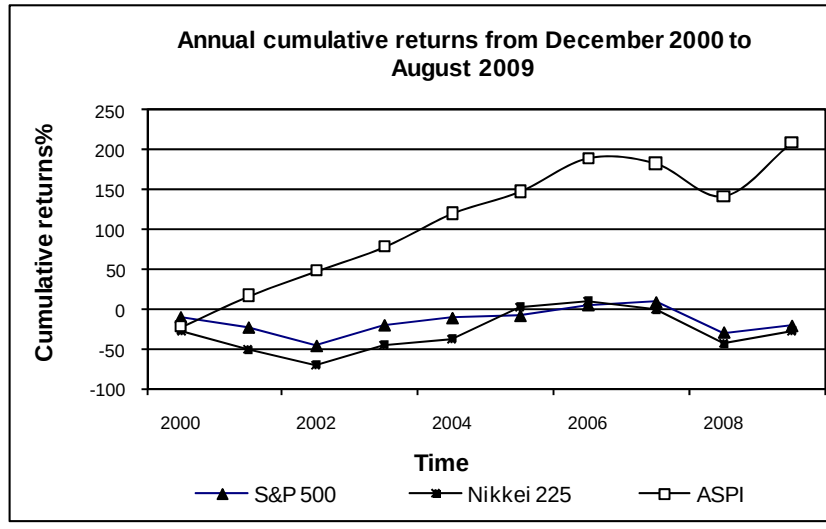

Figure 4 Annual cumulative returns of three indexes (S&P 500, U.S; Nikkei 225, Japan; ASPI, Sri Lanka)